

agent[ in a sufficient quantity to stabilize], wherein said agent stabilizes the size of [the] said particles [at a size of] to less than or equal to 160 [nm] nanometers.

2. (Amended.) [Composition] The composition according to claim 1, [characterized in that] wherein the at least one cationic transfection agent and the nucleic acid are present [therein] in a charge ratio of between 1 and 6.

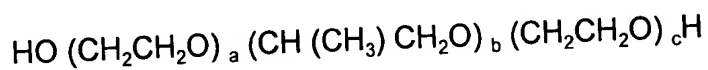
3. (Amended.) [Composition] The composition according to claim [1 or] 2, [characterized in that] wherein the at least one cationic transfection agent and the nucleic acid are present therein in a charge ratio of less than 4.

4. (Amended.) [Composition] The composition according to [one of the preceding claims, characterized in that] claim 1, wherein the surface-active agent comprises at least one hydrophobic segment and at least one hydrophilic segment.

5. (Amended.) [Composition] The composition according to claim 4, [characterized in that] wherein the hydrophobic segment is [chosen from aliphatic chains, polyoxyalkylenes, alkylidene polyesters, polyethylene glycols with a benzyl polyether head, and cholesterol] an aliphatic chain, a polyoxyalkylene, an alkylidene polyester, a polyethylene glycol with a benzyl polyether head, or cholesterol.

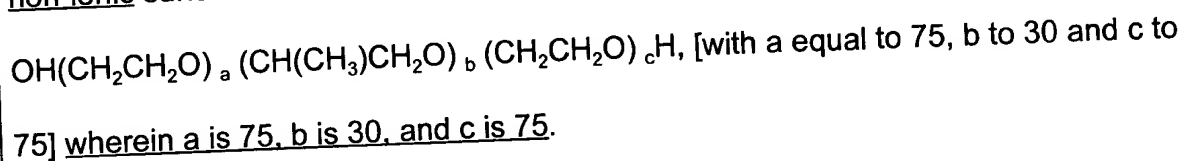
6. (Amended.) [Composition] The composition according to claim 4 [or] 5, [characterized in that] wherein the hydrophilic segment is [chosen from polyoxyalkylenes, polyvinyl alcohols, polyvinylpyrrolidones, or saccharides] a polyoxyalkylene, a polyvinyl alcohol, a polyvinylpyrrolidone, or a saccharide.

7. (Amended.) [Composition] The composition according to [one of the preceding claims, characterized in that] claim 1, wherein the at least one non-ionic surface-active agent is a polyoxyalkylene of the [general] formula:



[with a, b and c representing, independently of each other, integers which may vary between 20 and 100] wherein a, b, and c are, independently, a number from 20 to 100.

8. (Amended.) [Composition] The composition according to [one of the preceding claims, characterized in that it contains, as] claim 7, wherein the at least one non-ionic surface-active agent[, a] is a compound of the [general] formula:



9. (Amended.) [Composition] The composition according to [one of the preceding claims, characterized in that it contains, as] claim 1, wherein the at least one non-ionic surface-active agent[, a compound of the family of] is a polyethylene glycol [with] comprising a dendritic benzyl polyether head.

10. (Amended.) [Composition] The composition according to [one of the preceding claims, characterized in that it contains, as] claim 1, wherein the at least one non-ionic surface-active agent[, a compound of the] is a polyoxyethylene alcohol[ family].

11. (Amended.) [Composition] The composition according to [one of the preceding claims, characterized in that it contains, as] claim 1, wherein the at least one non-ionic surface-active agent[,] is a polyoxyethylene nonylphenyl ether.

12. (Amended.) [Composition] The composition according to [one of the preceding claims, characterized in that] claim 1, wherein the at least one non-ionic surface-active agent is present [therein] at a concentration [of between] ranging from 0.01% [and] to 10% weight/volume of [the] said composition.

13. (Amended.) [Composition] The composition according to [one of the preceding claims, characterized in that] claim 12, wherein the at least one non-ionic surface active agent is present [therein] at a concentration [of between] ranging from 0.02% [and] to 5% weight/volume of [the] said composition.

14. (Amended.) [Composition] The composition according to [one of the preceding claims, characterized in that] claim 1, wherein the cationic transfection agent is a lipofectant.

15. (Amended.) [Composition] The composition according to claim 14, [characterized in that] wherein the lipofectant is an amphiphilic molecule comprising at least one lipophilic region [combined or otherwise with] and a hydrophilic region.

16. (Amended.) [Composition] The composition according to claim 14, [characterized in that it] wherein the composition is a lipid mixture [capable of forming] comprising cationic liposomes.

17. (Amended.) [Composition] The composition according to claim 14 [or 15], [characterized in that it] wherein the lipofectant is a cationic lipid.

18. (Amended.) [Composition] The composition according to claim 14 [or 15], [characterized in that it is a] wherein the lipofectant [comprising] comprises at least one polyamine region of the [general] formula:



[in which] wherein X and X' [represent] are, independently of each other, an oxygen atom, a methylene group  $-(CH_2)_q-$  [with q equal to] wherein q is 0, 1, 2 or 3, or an amino group  $-NH-$  or  $-NR'-$ , with R' representing] wherein R' is a  $C_1$  to  $C_4$  alkyl group[.];

Y and Y' [represent] are, independently of each other, a methylene group, a carbonyl group or a group  $C=S[.]$ ;

$R_3$ ,  $R_4$  and  $R_5$  [represent,] are, independently of each other, a hydrogen atom or a substituted or unsubstituted  $C_1$  to  $C_4$  alkyl radical[.];

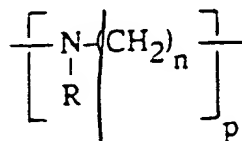
[with p capable of varying between] p is a number from 0 [and] to 5[.];

$R_6$  [represents] is a cholesterol derivative or an alkylamino group  $-NR_1R_2$  [with] wherein  $R_1$  and  $R_2$  [representing,] are, independently of each other, a saturated or unsaturated[, linear or branched]  $C_{12}$  to  $C_{22}$  aliphatic radical, wherein said radical is linear or branched.

22. (Amended.) [Composition] The composition according to [either of claims] claim 14 [and 15], [characterized in that it involves] wherein the lipofectant is a cationic lipid [carrying one or more guanidinium and/or amidinium groups] comprising at least one guanidinium or amidinium group or a mixture thereof.

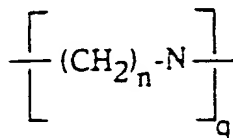
23. (Amended.) [Composition] The composition according to [one of claims 1 to 13, characterized in that] claim 1, wherein the cationic transfection agent is a cationic polymer.

24. (Amended.) [Composition] The composition according to claim 23, [characterized in that the ] wherein said cationic polymer is a compound of the [general] formula (I):



(I)

[in which] wherein R [may be] is a hydrogen atom or a group of formula:



wherein n [being an integer between] is a number from 2 [and] to 10, and p and q [being integers, it being understood that] are numbers wherein the sum p+q is such that the average molecular weight of the polymer [is between] ranges from 100 [and] to 10<sup>7</sup> Da.

25. (Amended.) [Composition] The composition according to claim 23, [ or 24, characterized in that it involves the] wherein said cationic polymer is a polyethylene imine [of] having an average molecular weight of 50,000 Da (PEI50K), [the polyethylene imine of average molecular weight] 22,000 Da (PEI22K), or [the polyethylene imine of average molecular weight] 800,000 Da (PEI800K).

27. (Amended.) [Composition] The composition according to [one of the preceding claims, characterized in that the] claim 1, wherein said nucleic acid is a deoxyribonucleic acid.

28. (Amended.) [Composition] The composition according to [one of the preceding claims, characterized in that the] claim 1, wherein said nucleic acid is a ribonucleic acid.

29. (Amended.) [Composition] The composition according to claim 27 [or 28], [characterized in that] wherein the nucleic acid is chemically modified.

30. (Amended.) [Composition] The composition according to [one of claims 1 to 26, characterized in that the] claim 1, wherein said nucleic acid is an antisense nucleic acid.

31. (Amended.) [Composition] The composition according to [one of the preceding claims, characterized in that the] claim 1, wherein said nucleic acid comprises a therapeutic gene.

32. (Amended.) [Composition] The composition according to [one of the preceding claims, characterized in that it comprises, in addition,] claim 1, further comprising an adjuvant [of the type comprising] selected from the group consisting of dioleoylphosphatidylethanolamine (DOPE), oleoylpalmitoylphosphatidylethanolamine (POPE), di-stearoyl, -palmitoyl, and -myristoyl phosphatidylethanolamines[ as well as their derivatives which are N-methylated 1 to 3 times] optionally substituted with 1 to 3 N-methyl groups, phosphatidylglycerols, diacylglycerols, glycosyldiacylglycerols, cerebroside [(such as in particular galactocerebrosides)], sphingolipids [(such as in particular sphingomyelins) or alternatively] and asialogangliosides.

33. (Amended.) [Composition] The composition according to [one of the preceding claims, characterized in that it combines, in addition,] claim 1, further comprising a targeting element[ with the cationic transfection agent].

34. (Amended.) [Composition] The composition according to claim 33, [characterized in that this] wherein said targeting element is [chosen from antibodies directed against molecules of the cellular surface,] an antibody directed against a cell surface molecule; a membrane receptor [ligands such as] ligand selected from the group consisting of insulin, transferrin, folic acid [or any other] and a growth factor[,]; cytokines; [or] vitamins[,]; lectins[, modified or otherwise,]; proteins with an RGD unit[,]; peptides containing a tandem array of RGD units[, cyclic or otherwise,] wherein said peptides are linear or cyclic; polylysine peptides[ as well as natural or synthetic ligand peptides]; natural ligand peptides; and synthetic ligand peptides.

35. (Amended) [Process] A process for [the preparation of a composition comprising particles of cationic transfection agent(s)/nucleic acid complexes, characterized in that] making the composition according to claim 1, comprising forming particles by bringing [the] at least one transfecting agent and [the] a nucleic acid [are brought] into contact in the presence of a sufficient quantity of [a] at least one nonionic surface-active agent to stabilize the particles [of nucleic complexes thus] formed at a size of less than about 160 nm.

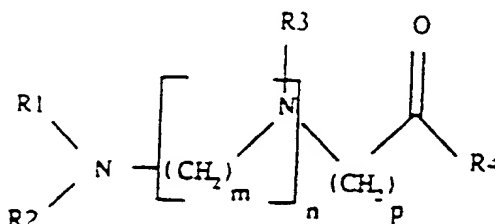
36. (Amended.) [Process] The process according to claim 35, [characterized in that one of the components chosen from] wherein the nucleic acid or the [lipofectant] at least one transfecting agent is mixed [beforehand] before said contact with the at



least one nonionic surface-active agent[ before being brought into contact with the second component].

37. (Amended.) [Process] The process according to claim 35[or 36, characterized in that], wherein the at least one non-ionic surface-active agent [is defined therein according to claims 4 to 13] comprises at least one hydrophobic segment and at least one hydrophilic segment.

--38. The composition according to claim 14, wherein the lipofectant is of the formula:

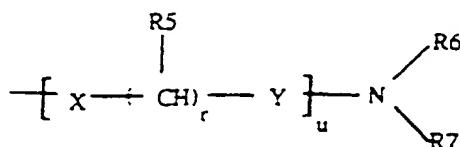


wherein

$R_1$ ,  $R_2$  and  $R_3$  are, independently of each other, a hydrogen atom or a group  $-(CH_2)_q-NRR'$ , wherein each  $q$  is, independently, 1, 2, 3, 4, 5 or 6, and each  $R$  and  $R'$  is, independently of each other, a hydrogen atom or a group  $-(CH_2)_{q'}-NH_2$ , wherein  $q'$  is independently, 1, 2, 3, 4, 5 or 6;

$m$ ,  $n$  and  $p$  are, independently of each other, a number between 0 and 6, wherein when  $n$  is greater than 1, each  $m$  is capable of taking different values and each  $R_3$  is capable of having different meanings within their respective definitions;

$R_4$  represents a group of formula:



wherein  $R_6$  and  $R_7$  are, independently of each other, a hydrogen atom or a saturated or unsaturated  $C_{10}$  to  $C_{22}$  aliphatic radical, with the proviso that  $R_6$  and  $R_7$  are not both hydrogen atoms;

$u$  is a number from 0 to 10, wherein when  $u$  is greater than 1,  $R_5$ ,  $X$ ,  $Y$  and  $r$  are capable of having different meanings within the different units  $[X-(CHR_5)_r-Y]$ ;

$X$  is oxygen, sulphur, or an amine group which is monoalkylated;

$Y$  is a carbonyl group or a methylene group;

$R_5$  is hydrogen or a natural amino acid side chain which is optionally substituted;

and

$r$  is a number from 1 to 10, wherein when  $r$  is equal to 1,  $R_5$  is a substituted or unsubstituted natural amino acid side chain, and when  $r$  is greater than 1,  $R_5$  is hydrogen.

39. The composition according to claim 32, wherein the cerebroside is a galactocerebroside.

40. The composition according to claim 32, wherein the sphingolipid is a sphingomyelin.

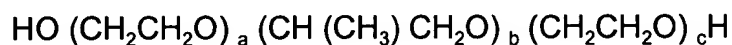
41. The composition according to claim 1, wherein said cationic transfection agent is lipofectamine, dioctadecylamidoglycyl spermine (DOGS), palmitoylphosphatidylethanolamine 5-carboxyspermylamide (DPPES), 2,5-bis(3-aminopropylamino)pentyl(dioctadecylcarbamoylethoxy)acetate or 1,3-bis(3-aminopropylamino)-2-propyl (dioctadecylcarbamoylethoxy)acetate,  $\{H_2N(CH_2)_3\}_2N(CH_2)_4N\{(CH_2)_3NH_2\}(CH_2)_3NHCH_2COGlyN[(CH_2)_{17}CH_3]_2$ ,  $H_2N(CH_2)_3NH(CH_2)_4NH(CH_2)_3NHCH_2COGlyN[(CH_2)_{17}CH_3]_2$ , or  $H_2N(CH_2)_3NH(CH_2)_4NH(CH_2)_3NHCH_2COArgN[(CH_2)_{17}CH_3]_2$ .

42. The process according to claim 36, wherein the at least one transfecting agent is a lipofectant.

43. The process according to claim 37, wherein the hydrophobic segment is an aliphatic chain, a polyoxyalkylene, an alkylidene polyester, a polyethylene glycol with a benzyl polyether head, or cholesterol.

44. The process according to claim 37, wherein the hydrophilic segment is a polyoxyalkylene, a polyvinyl alcohol, a polyvinylpyrrolidone, or a saccharide.

45. The process according to claim 35, wherein the at least one non-ionic surface-active agent is a polyoxyalkylene of the formula:



wherein a, b, and c are, independently, a number from 20 to 100.

46. The process according to claim 45, wherein the at least one non-ionic surface-active agent is a compound of the formula:

